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NPIC/TDS/D-1187-67
21 December 1967

MEMORANDUM FOR THE RECORD

SUBJECT: Twin Stage, On-Line PI Comparator

1. Proposals for a prototype Twin Stage, On-Line PI Comparator have been submitted by six contractors and evaluated by the technical monitor.

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2. The technical monitor rates the proposals in the following order: (a)

[REDACTED]

3. No one proposal contains all of the required or desired features but the [REDACTED] proposal is the best overall approach.

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a. Some of the highlights of their proposal are as follows:

(1) Increase the separation of the objectives from 12.1 inches to 18 inches to allow full coverage of each of the 6 inch by 6 inch stages.

(2) Differential focus in each leg of the microscope.

(3) Air cooling the film platen.

b. Some of the shortcomings of the proposal are as follows:

(1) Glass pressure plate for film hold down may degrade the imagery.

(2) The range of speeds for stage movement might be improved.

(3) Rotation of joystick to agree with direction of stage movement is desirable.

(4) Circuitry to set differential stage speeds in accordance with optical magnification is desirable.

4. [REDACTED] proposal has some interesting possibilities.

25X1

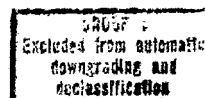
a. Some of the better points are:

(1) Differential focus would take place at each turret.
(Both coarse and fine).

NGA Review Complete

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(2) ☐ tests indicate that glass pressure plate for film hold down will degrade the imagery.

(3) As an alternative solution (at added pricing) ☐ suggests increasing the objective separation to 18 inches and adding optical switching.

25X1

(4) Microswitch in 10X objective position to activate a condenser element for better performance.

b. Some of the drawbacks are:

(1) Very little imagination or engineering went into the mechanical and electrical portion of the comparator.

(2) Seriously doubt that free aperture arrangement for film hold down is adequate. Even with plastic envelopes the chips probably would not be flat and there might be a reduction in resolution.

(3) Not sure if the proposed High Power Stereo Viewer light source is adequate for the job.

25X1

5. ☐ did a very good job of packaging the instrument but left the ☐ Viewer as is without any modifications. 25X1

a. Some of the good points are:

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(1) Included ☐ control panel and digital display as part of the main unit.

(2) Sine-Cosine pot on the joystick allows rotation to agree with stage movement.

(3) Vacuum hold down is good solution but contractor will have to supply the compressor unit and sound proof it.

(4) Correlation between optical setting and stage drive speeds.

b. Some of the bad points are:

(1) Differential fine focusing at the non-measuring stage may be difficult to accomplish.

(2) Using the same size light spot for the entire magnification range could be troublesome.

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6. Alternative solutions available:

a. Attempt to get two contractors to split up the work. Have [] produce the viewer with an 18 inch separation, optical switching, and focusing each optical leg at the turret; while having another contractor such as [] take this new optical head and incorporate it into a comparator system. The disadvantage is that [] probably would turn down the proposition.

b. It might be better to have [] make any modifications to the optical head since they are the manufacturer of the item.

c. [] uses the basic Dynazoom optics for their comparators and modifies these to meet their needs, therefore, they have a good working knowledge of the basic optical system and could accomplish the proposed modifications.

7. Conclusions and recommendations:

a. [] has the best overall approach to the problem; therefore, it is recommended that [] be informed that NPIC has certain items they wish to have included in the instrument and request pricing on the changes.

b. Since the [] bid is quite a bit lower than the others and they do not expect any major problems, it is recommended that [] be requested to bid on a Fixed Price basis.

c. If these conditions can be met, it is recommended that [] be awarded a Fixed Price Contract to develop a prototype Twin Stage, On-Line PI Comparator.

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